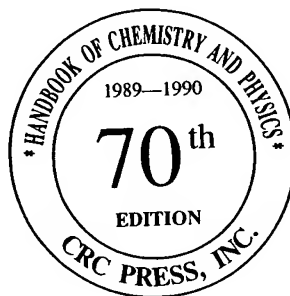


Serial No. 10/028,040
Group No. 1765
Confirmation No. 2997

CRC Handbook of Chemistry and Physics

A Ready-Reference Book of Chemical and Physical Data



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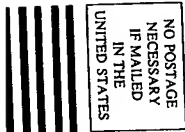
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CRC Press, Inc.
Boca Raton, Florida



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Library of Congress Card No. 13-11056
PRINTED IN U.S.A.
ISBN-0-8493-0470-9

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CONVERSION FORMULAE FOR SOLUTIONS HAVING CONCENTRATIONS EXPRESSED IN VARIOUS WAYS

A = Weight per cent of solute
B = Molecular weight of solvent
E = Molecular weight of solute
F = Grams of solute per liter of solution
G = Molality
M = Molarity
N = Mole fraction
R = Density of solution grams per cc

Concentration of solute— SOUGHT	Concentration of solute—GIVEN				
	A	N	G	M	F
A	—	$\frac{100N \times E}{N \times E + (1 - N)B}$	$\frac{100G \times E}{1000 + G \times E}$	$\frac{M \times E}{10R}$	$\frac{F}{10R}$
N	$\frac{\frac{A}{E} + \frac{100 - A}{B}}{1}$	—	$\frac{B \times G}{B \times G + 1000}$	$\frac{B \times M}{M(B - E) + 1000R}$	$\frac{B \times F}{F(B - E) + 1000R \times E}$
G	$\frac{1000A}{E(100 - A)}$	$\frac{1000N}{B - N \times B}$	—	$\frac{1000M}{1000R - (M \times E)}$	$\frac{1000F}{E(1000R - F)}$
M	$\frac{10R \times A}{E}$	$\frac{1000R \times N}{N \times E + (1 - N)B}$	$\frac{1000R \times G}{1000 + E \times G}$	—	$\frac{F}{E}$
F	10AR	$\frac{1000R \times N \times E}{N \times E + (1 - N)B}$	$\frac{1000R \times G \times E}{1000 + G \times E}$	M × E	—

ELECTROCHEMICAL SERIES

Petr Vanýsek

There are three tables for this Electrochemical Series. Each table lists standard reduction potentials, E° values, at 298.15 K (25°C), and at a pressure of 101.325 kPa (1 atm.). Table 1 is an alphabetical listing of the elements according to the symbols for the elements. Thus, data for Silver (Ag) precedes those for Aluminum (Al). Table 2 lists only those reduction reactions which have E° values positive to the potential of the Standard Hydrogen Electrode. In Table 2, the reactions are listed in the order of increasing positive potential and range from 0.000 V to +3.053 V. Table 3 lists only those reduction reactions which have E° values negative to the potential of the Standard Hydrogen Electrode. In Table 3, reactions are listed in the order of increasing negative potential and range from -0.017 to -4.10 V.

Table 1
ALPHABETICAL LISTING

Reaction	E° , V	Reaction	E° , V
$\text{Ag}^+ + e \rightleftharpoons \text{Ag}$	0.7996	$\text{Ag}_2\text{WO}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{WO}_4^{2-}$	0.4660
$\text{Ag}^{2+} + e \rightleftharpoons \text{Ag}^+$	1.980	$\text{Al}^{3+} + 3e \rightleftharpoons \text{Al}$	-1.662
$\text{Ag}(\text{ac}) + e \rightleftharpoons \text{Ag} + (\text{ac})^-$	0.643	$\text{H}_2\text{AlO}_3^- + \text{H}_2\text{O} + 3e \rightleftharpoons \text{Al} + 4\text{OH}^-$	-2.33
$\text{AgBr} + e \rightleftharpoons \text{Ag} + \text{Br}^-$	0.07133	$\text{AlF}_2^- + 3e \rightleftharpoons \text{Al} + 6\text{F}^-$	-2.069
$\text{AgBrO}_3 + e \rightleftharpoons \text{Ag} + \text{BrO}_3^-$	0.546	$\text{As} + 3\text{H}^+ + 3e \rightleftharpoons \text{AsH}_3$	-0.608
$\text{Ag}_2\text{C}_2\text{O}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{C}_2\text{O}_4^{2-}$	0.4647	$\text{As}_2\text{O}_3 + 6\text{H}^+ + 6e \rightleftharpoons 2\text{As} + 3\text{H}_2\text{O}$	0.234
$\text{AgCl} + e \rightleftharpoons \text{Ag} + \text{Cl}^-$	0.22233	$\text{HASO}_3 + 3\text{H}^+ + 3e \rightleftharpoons \text{As} + 2\text{H}_2\text{O}$	0.248
$\text{AgCN} + e \rightleftharpoons \text{Ag} + \text{CN}^-$	-0.017	$\text{AsO}_3^- + 2\text{H}_2\text{O} + 3e \rightleftharpoons \text{As} + 4\text{OH}^-$	-0.68
$\text{AgCO}_3 + 2e \rightleftharpoons 2\text{Ag} + \text{CO}_3^{2-}$	0.47	$\text{H}_3\text{AsO}_4 + 2\text{H}^+ + 2e \rightleftharpoons \text{HASO}_3 + 2\text{H}_2\text{O}$	0.560
$\text{Ag}_2\text{CrO}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{CrO}_4^{2-}$	0.4470	$\text{AsO}_3^- + 2\text{H}_2\text{O} + 2e \rightleftharpoons \text{AsO}_2^- + 4\text{OH}^-$	-0.71
$\text{AgF} + e \rightleftharpoons \text{Ag} + \text{F}^-$	0.779	$\text{Au}^+ + e \rightleftharpoons \text{Au}$	1.692
$[\text{Fe}(\text{CN})_6] + 4e \rightleftharpoons 4\text{Ag} + [\text{Fe}(\text{CN})_6]^{4-}$	0.1478	$\text{Au}^{3+} + 2e \rightleftharpoons \text{Au}^+$	1.401
$\text{Ag} + e \rightleftharpoons \text{Ag} + \text{I}^-$	-0.15224	$\text{Au}^{3+} + 3e \rightleftharpoons \text{Au}$	1.498
$\text{AgIO}_3 + e \rightleftharpoons \text{Ag} + \text{IO}_3^-$	0.354	$\text{AuBr}_2^- + e \rightleftharpoons \text{Au} + 2\text{Br}^-$	0.959
$\text{Ag}_2\text{MoO}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{MoO}_4^{2-}$	0.4573	$\text{AuBr}_4^- + 3e \rightleftharpoons \text{Au} + 4\text{Br}^-$	0.854
$\text{AgNO}_3 + e \rightleftharpoons \text{Ag} + \text{NO}_3^-$	0.564	$\text{AuCl}_4^- + 3e \rightleftharpoons \text{Au} + 4\text{Cl}^-$	1.002
$\text{Ag} + \text{H}_2\text{O} + 2e \rightleftharpoons 2\text{Ag} + 2\text{OH}^-$	0.342	$\text{Au}(\text{OH})_3 + 3\text{H}^+ + 3e \rightleftharpoons \text{Au} + 3\text{H}_2\text{O}$	1.45
$\text{Ag} + \text{H}_2\text{O} + 2e \rightleftharpoons 2\text{AgO} + 2\text{OH}^-$	0.739	$\text{H}_2\text{BO}_3^- + 5\text{H}_2\text{O} + 8e \rightleftharpoons \text{BH}_4^- + 8\text{OH}^-$	-1.24
$\text{Ag} + \text{H}_2\text{O} + 2e \rightleftharpoons \text{Ag}_2\text{O} + 2\text{OH}^-$	0.607	$\text{H}_2\text{BO}_3^- + \text{H}_2\text{O} + 3e \rightleftharpoons \text{B} + 4\text{OH}^-$	-1.79
$\text{Ag} + e \rightleftharpoons \text{Ag} + \text{OCN}^-$	0.41	$\text{H}_2\text{BO}_3 + 3\text{H}^+ + 3e \rightleftharpoons \text{B} + 3\text{H}_2\text{O}$	-0.8698
$2\text{Ag} + 2e \rightleftharpoons 2\text{Ag} + \text{S}^{2-}$	-0.691	$\text{Ba}^{2+} + 2e \rightleftharpoons \text{Ba}$	-2.912
$2\text{H}^+ + 2e \rightleftharpoons 2\text{Ag} + \text{H}_2\text{S}$	-0.0366	$\text{Ba}^{2+} + 2e \rightleftharpoons \text{Ba}(\text{Hg})$	-1.570
$\text{Ag} + e \rightleftharpoons \text{Ag} + \text{SCN}^-$	0.08951	$\text{Ba}(\text{OH})_2 + 2e \rightleftharpoons \text{Ba} + 2\text{OH}^-$	-2.99
$\text{Ag} + 2e \rightleftharpoons 2\text{Ag} + \text{SeO}_3^{2-}$	0.3629	$\text{Be}^{2+} + 2e \rightleftharpoons \text{Be}$	-1.847
$\text{Ag} + 2e \rightleftharpoons 2\text{Ag} + \text{SO}_3^{2-}$	0.654	$\text{Be}_2\text{O}_3^- + 3\text{H}_2\text{O} + 4e \rightleftharpoons 2\text{Be} + 6\text{OH}^-$	-2.63

Table 1 (continued)
ALPHABETICAL LISTING

Reaction	E°, V	Reaction	E°, V	Reaction	E°, V
p-benzoquinone + 2 H ⁺ + 2 e ⁻ ⇌ hydroquinone	0.6992	Co ³⁺ + e ⁻ ⇌ Co ²⁺ (2 mol/l H ₂ SO ₄)		Hg ₂ (ac) ₂ + 2 e ⁻ ⇌ 2 Hg	
BiCl ₃ + 3 e ⁻ ⇌ Bi + 4 Cl ⁻	0.16	[Co(NH ₃) ₆] ³⁺ + e ⁻ ⇌ [Co(NH ₃) ₆] ²⁺		HgBr ₂ + 2 e ⁻ ⇌ 2 Hg +	
Bi ₂ O ₃ + 3 H ₂ O + 6 e ⁻ ⇌ 2 Bi + 6 OH ⁻	-0.46	Co(OH) ₂ + 2 e ⁻ ⇌ Co + 2 OH ⁻	-0.0	HgCl ₂ + 2 e ⁻ ⇌ 2 Hg +	
Bi ₂ O ₃ + 4 H ⁺ + 2 e ⁻ ⇌ 2 BiO ⁺ + 2 H ₂ O	1.593	Co(OH) ₃ + e ⁻ ⇌ Co(OH) ₂ + OH ⁻	-0.0	Hg ₂ HPO ₄ + 2 e ⁻ ⇌ 2 Hg	
BiO ⁺ + 2 H ⁺ + 3 e ⁻ ⇌ Bi + H ₂ O	0.320	CO ₂ + 2 H ⁺ + 2 e ⁻ ⇌ HCOOH	-0.0	Hg ₂ I ₂ + 2 e ⁻ ⇌ 2 Hg +	
BiOCl + 2 H ⁺ + 3 e ⁻ ⇌ Bi + Cl ⁻ + H ₂ O	0.1583	Cr ³⁺ + 2 e ⁻ ⇌ Cr	-0.0	HgO + H ₂ O + 2 e ⁻ ⇌	
Br ₂ (aq) + 2 e ⁻ ⇌ 2 Br ⁻	1.0873	Cr ³⁺ + e ⁻ ⇌ Cr ²⁺	-0.0	HgO + H ₂ O + 2 e ⁻ ⇌	
Br ₂ (l) + 2 e ⁻ ⇌ 2 Br ⁻	1.066	Cr ³⁺ + 3 e ⁻ ⇌ Cr	-0.0	HgSO ₄ + 2 e ⁻ ⇌ 2 Hg	
HBrO + H ⁺ + 2 e ⁻ ⇌ Br ⁻ + H ₂ O	1.331	Cr ₂ O ₇ ²⁻ + 14 H ⁺ + 6 e ⁻ ⇌ 2 Cr ³⁺ + 7 H ₂ O	1.2	I ₂ + 2 e ⁻ ⇌ 2 I ⁻	
HBrO + H ⁺ + e ⁻ ⇌ 1/2 Br ₂ (aq) + H ₂ O	1.574	CrO ₅ + 2 H ₂ O + 3 e ⁻ ⇌ Cr + 4 OH ⁻	1.3	I ₃ ⁻ + 2 e ⁻ ⇌ 3 I ⁻	
HBrO + H ⁺ + e ⁻ ⇌ 1/2 Br ₂ (l) + H ₂ O	1.596	HCrO ₄ ⁻ + 7 H ⁺ + 3 e ⁻ ⇌ Cr ³⁺ + 4 H ₂ O	1.3	H ₂ IO ₆ + 2 e ⁻ ⇌ IO ₃ ⁻ +	
BrO ⁻ + H ₂ O + 2 e ⁻ ⇌ Br ⁻ + 2 OH ⁻	0.761	CrO ₅ + 4 H ₂ O + 3 e ⁻ ⇌ Cr(OH) ₃ + 5 OH ⁻	-0.1	H ₂ IO ₆ + H ⁺ + 2 e ⁻ ⇌	
BrO ₃ ⁻ + 6 H ⁺ + 5 e ⁻ ⇌ 1/2 Br ₂ + 3 H ₂ O	1.482	Cr(OH) ₃ + 3 e ⁻ ⇌ Cr + 3 OH ⁻	-1.4	2 HIO + 2 H ⁺ + 2 e ⁻ ⇌	
BrO ₃ ⁻ + 6 H ⁺ + 6 e ⁻ ⇌ Br ⁻ + 3 H ₂ O	1.423	Cs ⁺ + e ⁻ ⇌ Cs	-2.9	2 HIO + H ⁺ + 2 e ⁻ ⇌ I ⁻	
BrO ₃ ⁻ + 3 H ₂ O + 6 e ⁻ ⇌ Br ⁻ + 6 OH ⁻	0.61	Cu ⁺ + e ⁻ ⇌ Cu	0.5	IO ⁻ + H ₂ O + 2 e ⁻ ⇌ I ⁻	
Ca ²⁺ + e ⁻ ⇌ Ca	-3.80	Cu ²⁺ + e ⁻ ⇌ Cu ⁺	0.15	2 IO ₃ ⁻ + 12 H ⁺ + 10 e ⁻ ⇌	
Ca ²⁺ + 2 e ⁻ ⇌ Ca	-2.868	Cu ²⁺ + 2 e ⁻ ⇌ Cu	0.34	IO ₃ ⁻ + 6 H ⁺ + 6 e ⁻ ⇌ I ⁻	
Calomel electrode, 1 molal KCl	0.2800	Cu ²⁺ + 2 e ⁻ ⇌ Cu(Hg)	0.34	IO ₃ ⁻ + 2 H ₂ O + 4 e ⁻ ⇌	
Calomel electrode, 1 mol/l KCl (NCE)	0.2801	Cu ²⁺ + 2 CN ⁻ + e ⁻ ⇌ [Cu(CN) ₃] ⁻	1.103	IO ₃ ⁻ + 3 H ₂ O + 6 e ⁻ ⇌	
Calomel electrode, 0.1 mol/l KCl	0.3337	CuI ₂ + e ⁻ ⇌ Cu + 2 I ⁻	0.00	In ⁺ + e ⁻ ⇌ In	
Calomel electrode, saturated KCl (SCE)	0.2412	Cu ₂ O + H ₂ O + 2 e ⁻ ⇌ 2 Cu + 2 OH ⁻	-0.360	In ²⁺ + e ⁻ ⇌ In ⁺	
Calomel electrode, saturated NaCl (SSCE)	0.2360	Cu(OH) ₂ + 2 e ⁻ ⇌ Cu + 2 OH ⁻	-0.222	In ³⁺ + e ⁻ ⇌ In ²⁺	
Ca(OH) ₂ + 2 e ⁻ ⇌ Ca + 2 OH ⁻	-3.02	2 Cu(OH) ₂ + 2 e ⁻ ⇌ Cu ₂ O + 2 OH ⁻ + H ₂ O	-0.080	In ³⁺ + 2 e ⁻ ⇌ In ⁺	
Cd ²⁺ + 2 e ⁻ ⇌ Cd	-0.4030	D ⁺ + e ⁻ ⇌ 1/2 D ₂	-0.003	In ³⁺ + 3 e ⁻ ⇌ In	
Cd ²⁺ + 2 e ⁻ ⇌ Cd(Hg)	-0.3521	2 D ⁺ + 2 e ⁻ ⇌ D ₂	-0.044	Ir ³⁺ + 3 e ⁻ ⇌ Ir	
Cd(OH) ₂ + 2 e ⁻ ⇌ Cd(Hg) + 2 OH ⁻	-0.809	Eu ²⁺ + 2 e ⁻ ⇌ Eu	-3.395	[IrCl ₄] ⁻ + e ⁻ ⇌ [IrCl ₄] ²⁻	
CdSO ₄ + 2 e ⁻ ⇌ Cd + SO ₄ ²⁻	-0.246	Eu ³⁺ + 3 e ⁻ ⇌ Eu	-2.407	[IrCl ₄] ²⁻ + 3 e ⁻ ⇌ Ir +	
Ce ³⁺ + 3 e ⁻ ⇌ Ce	-2.483	Eu ³⁺ + e ⁻ ⇌ Eu ²⁺	-0.36	IrO ₃ + 3 H ₂ O + 6 e ⁻ ⇌	
Ce ³⁺ + 3 e ⁻ ⇌ Ce(Hg)	-1.4373	F ₂ + 2 H ⁺ + 2 e ⁻ ⇌ 2 HF	3.053	K ⁺ + e ⁻ ⇌ K	
Ce ⁴⁺ + e ⁻ ⇌ Ce ³⁺	1.61	F ₂ + 2 e ⁻ ⇌ 2 F ⁻	2.866	La ³⁺ + 3 e ⁻ ⇌ La	
CeOH ³⁺ + H ⁺ + e ⁻ ⇌ Ce ³⁺ + H ₂ O	1.715	F ₂ O + 2 H ⁺ + 4 e ⁻ ⇌ H ₂ O + 2 F ⁻	2.153	La(OH) ₃ + 3 e ⁻ ⇌ La +	
Cl ₂ (g) + 2 e ⁻ ⇌ 2 Cl ⁻	1.35827	Fe ²⁺ + 2 e ⁻ ⇌ Fe	-0.037	Li ⁺ + e ⁻ ⇌ Li	
HClO + H ⁺ + e ⁻ ⇌ 1/2 Cl ₂ + H ₂ O	1.611	Fe ³⁺ + 3 e ⁻ ⇌ Fe	0.77	Mg ⁺ + e ⁻ ⇌ Mg	
HClO + H ⁺ + 2 e ⁻ ⇌ Cl ⁻ + H ₂ O	1.482	Fe ²⁺ + e ⁻ ⇌ Fe ⁺	0.35	Mg ²⁺ + 2 e ⁻ ⇌ Mg	
ClO ⁻ + H ₂ O + 2 e ⁻ ⇌ Cl ⁻ + 2 OH ⁻	0.81	[Fe(CN) ₆] ³⁻ + e ⁻ ⇌ [Fe(CN) ₆] ⁴⁻	2.20	Mg(OH) ₂ + 2 e ⁻ ⇌ Mg	
ClO ₂ + H ⁺ + e ⁻ ⇌ HClO ₂	1.277	FeO ₄ ²⁻ + 8 H ⁺ + 3 e ⁻ ⇌ Fe ³⁺ + 4 H ₂ O	-0.56	Mn ²⁺ + 2 e ⁻ ⇌ Mn	
HClO ₂ + 2 H ⁺ + 2 e ⁻ ⇌ HClO + H ₂ O	1.645	Fe(OH) ₃ + e ⁻ ⇌ Fe(OH) ₂ + OH ⁻	1.14	Mn ³⁺ + 3 e ⁻ ⇌ Mn ²⁺	
HClO ₂ + 3 H ⁺ + 3 e ⁻ ⇌ 1/2 Cl ₂ + 2 H ₂ O	1.628	[Fe(phenanthroline)] ³⁺ + e ⁻ ⇌ [Fe(phenanthroline)] ²⁺	1.06	MnO ₂ + 4 H ⁺ + 2 e ⁻ ⇌	
HClO ₂ + 3 H ⁺ + 4 e ⁻ ⇌ Cl ⁻ + 2 H ₂ O	1.570	[Fe(phen)] ³⁺ + e ⁻ ⇌ [Fe(phen)] ²⁺ (1 mol/l H ₂ SO ₄)	0.400	MnO ₂ + e ⁻ ⇌ MnO ₂ ⁻	
ClO ₂ ⁻ + H ₂ O + 2 e ⁻ ⇌ ClO ⁻ + 2 OH ⁻	0.66	[Fermicinium] ⁺ + e ⁻ ⇌ ferrocene	-0.560	MnO ₂ ⁻ + 4 H ⁺ + 3 e ⁻ ⇌	
ClO ₂ ⁻ + 2 H ₂ O + 4 e ⁻ ⇌ Cl ⁻ + 4 OH ⁻	0.76	Ga ³⁺ + 3 e ⁻ ⇌ Ga	-1.219	MnO ₂ ⁻ + 8 H ⁺ + 5 e ⁻ ⇌	
ClO ₂ (aq) + e ⁻ ⇌ ClO ₂ ⁻	0.954	H ₂ GaO ₃ + H ₂ O + 3 e ⁻ ⇌ Ga + 4 OH ⁻	0.24	MnO ₂ ⁻ + 2 H ₂ O + 3 e ⁻ ⇌	
ClO ₂ ⁻ + 2 H ⁺ + e ⁻ ⇌ ClO ₂ + H ₂ O	1.152	Ge ²⁺ + 2 e ⁻ ⇌ Ge	0.12	MnO ₂ ⁻ + 2 H ₂ O + 2 e ⁻ ⇌	
ClO ₂ ⁻ + 3 H ⁺ + 2 e ⁻ ⇌ HClO ₂ + H ₂ O	1.214	Ge ³⁺ + 4 e ⁻ ⇌ Ge	0.00	Mn(OH) ₂ + 2 e ⁻ ⇌ Mn	
ClO ₂ ⁻ + 6 H ⁺ + 5 e ⁻ ⇌ 1/2 Cl ₂ + 3 H ₂ O	1.47	Ge ⁴⁺ + 2 e ⁻ ⇌ Ge ²⁺	-0.115	Mn(OH) ₃ + e ⁻ ⇌ Mn(O	
ClO ₂ ⁻ + 6 H ⁺ + 6 e ⁻ ⇌ Cl ⁻ + 3 H ₂ O	1.451	GeO ₂ + 2 H ⁺ + 2 e ⁻ ⇌ GeO + H ₂ O	-0.182	Mo ³⁺ + 3 e ⁻ ⇌ Mo	
ClO ₂ ⁻ + H ₂ O + 2 e ⁻ ⇌ ClO ₂ ⁻ + 2 OH ⁻	0.33	H ₂ GeO ₄ + 4 H ⁺ + 4 e ⁻ ⇌ Ge + 3 H ₂ O	0.0000	N ₂ + 2 H ₂ O + 6 H ⁺ +	
ClO ₂ ⁻ + 3 H ₂ O + 6 e ⁻ ⇌ Cl ⁻ + 6 OH ⁻	0.62	2 H ⁺ + 2 e ⁻ ⇌ H ₂	-2.23	3 N ₂ + 2 H ₂ + 2 e ⁻ ⇌	
ClO ₄ ⁻ + 2 H ⁺ + 2 e ⁻ ⇌ ClO ₃ ⁻ + H ₂ O	1.189	H ₂ + 2 e ⁻ ⇌ 2 H ⁻	1.495	N ₂ ⁺ + 3 H ⁺ + 2 e ⁻ ⇌	
ClO ₄ ⁻ + 8 H ⁺ + 7 e ⁻ ⇌ 1/2 Cl ₂ + 4 H ₂ O	1.39	HO ₂ + H ⁺ + e ⁻ ⇌ H ₂ O ₂	-0.827	N ₂ O + 2 H ⁺ + 2 e ⁻ ⇌	
ClO ₄ ⁻ + 8 H ⁺ + 8 e ⁻ ⇌ Cl ⁻ + 4 H ₂ O	1.389	2 H ₂ O + 2 e ⁻ ⇌ H ₂ + 2 OH ⁻	1.776	H ₂ N ₂ O ₂ + 2 H ⁺ + 2 e ⁻ ⇌	
ClO ₄ ⁻ + H ₂ O + 2 e ⁻ ⇌ ClO ₃ ⁻ + 2 OH ⁻	0.36	H ₂ O ₂ + 2 H ⁺ + 2 e ⁻ ⇌ 2 H ₂ O	-1.724	N ₂ O ₄ + 2 e ⁻ ⇌ 2 NO ₂ ⁻	
(CN) ₂ + 2 H ⁺ + 2 e ⁻ ⇌ 2 HCN	0.373	HIO ₂ ⁺ + 2 H ⁺ + 4 e ⁻ ⇌ HI + H ₂ O	-1.50	N ₂ O ₄ + 2 H ⁺ + 2 e ⁻ ⇌	
2 HCN + 2 H ⁺ + 2 e ⁻ ⇌ (CN) ₂ + 2 H ₂ O	0.330	HIO ₃ + 4 H ⁺ + 4 e ⁻ ⇌ HI + 2 H ₂ O	-2.50	N ₂ O ₄ + 4 H ⁺ + 4 e ⁻ ⇌	
(CNS) ₂ + 2 e ⁻ ⇌ 2 CNS ⁻	0.77	HIO(OH) ₂ + H ₂ O + 4 e ⁻ ⇌ HI + 4 OH ⁻	0.85	2 NH ₄ OH ⁺ + H ⁺ + 2	
Co ²⁺ + 2 e ⁻ ⇌ Co	-0.28	Hg ²⁺ + 2 e ⁻ ⇌ Hg	0.92	2 NO + 2 e ⁻ ⇌ N ₂ O ₂ ²⁻	
		2 Hg ²⁺ + 2 e ⁻ ⇌ Hg ₂ ²⁺	0.79	2 NO + 2 H ⁺ + 2 e ⁻ ⇌	
		Hg ₂ ²⁺ + 2 e ⁻ ⇌ 2 Hg		2 NO + H ₂ O + 2 e ⁻ ⇌	

Table 1 (continued)
ALPHABETICAL LISTING

E°, V	Reaction	E°, V	Reaction	E°, V
1.83	$\text{Hg}_2(\text{ac})_2 + 2\text{e} \rightleftharpoons 2\text{Hg} + 2(\text{ac})^-$	0.51163	$\text{HNO}_2 + \text{H}^+ + \text{e} \rightleftharpoons \text{NO} + \text{H}_2\text{O}$	0.983
0.108	$\text{Hg}_2\text{Br}_2 + 2\text{e} \rightleftharpoons 2\text{Hg} + 2\text{Br}^-$	0.13923	$2\text{HNO}_2 + 4\text{H}^+ + 4\text{e} \rightleftharpoons \text{H}_2\text{N}_2\text{O}_2 + 2\text{H}_2\text{O}$	0.86
-0.73	$\text{Hg}_2\text{Cl}_2 + 2\text{e} \rightleftharpoons 2\text{Hg} + 2\text{Cl}^-$	0.26808	$2\text{HNO}_2 + 4\text{H}^+ + 4\text{e} \rightleftharpoons \text{N}_2\text{O} + 3\text{H}_2\text{O}$	1.297
0.17	$\text{Hg}_2\text{HPO}_4 + 2\text{e} \rightleftharpoons 2\text{Hg} + \text{HPO}_4^{2-}$	0.6359	$\text{NO}_2^- + \text{H}_2\text{O} + 3\text{e} \rightleftharpoons \text{NO} + 2\text{OH}^-$	-0.46
-0.199	$\text{Hg}_2\text{I}_2 + 2\text{e} \rightleftharpoons 2\text{Hg} + 2\text{I}^-$	-0.0405	$2\text{NO}_2^- + 2\text{H}_2\text{O} + 4\text{e} \rightleftharpoons \text{N}_2^{2-} + 4\text{OH}^-$	-0.18
-0.913	$\text{Hg}_2\text{O} + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons 2\text{Hg} + 2\text{OH}^-$	0.123	$2\text{NO}_2^- + 3\text{H}_2\text{O} + 4\text{e} \rightleftharpoons \text{N}_2\text{O} + 6\text{OH}^-$	0.15
-0.407	$\text{HgO} + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{Hg} + 2\text{OH}^-$	0.0977	$\text{NO}_2^- + 3\text{H}^+ + 2\text{e} \rightleftharpoons \text{HNO}_2 + \text{H}_2\text{O}$	0.934
-0.744	$\text{Hg}_2\text{SO}_4 + 2\text{e} \rightleftharpoons 2\text{Hg} + \text{SO}_4^{2-}$	0.6125	$\text{NO}_2^- + 4\text{H}^+ + 3\text{e} \rightleftharpoons \text{NO} + 2\text{H}_2\text{O}$	0.957
H_2O	$\text{I}_2 + 2\text{e} \rightleftharpoons 2\text{I}^-$	0.5355	$2\text{NO}_2^- + 4\text{H}^+ + 2\text{e} \rightleftharpoons \text{N}_2\text{O}_4 + 2\text{H}_2\text{O}$	0.803
-1.2	$\text{I}_2^- + 2\text{e} \rightleftharpoons 3\text{I}^-$	0.536	$\text{NO}_2^- + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{NO}_2^- + 2\text{OH}^-$	0.01
O	$\text{H}_2\text{IO}_6 + 2\text{e} \rightleftharpoons \text{IO}_3^- + 3\text{OH}^-$	0.7	$2\text{NO}_2^- + 2\text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{N}_2\text{O}_4 + 4\text{OH}^-$	-0.85
OH^-	$\text{H}_2\text{IO}_6 + \text{H}^+ + 2\text{e} \rightleftharpoons \text{IO}_3^- + 3\text{H}_2\text{O}$	1.601	$\text{Na}^+ + \text{e} \rightleftharpoons \text{Na}^0$	-2.71
-0.13	$2\text{HIO} + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{I}_2 + 2\text{H}_2\text{O}$	1.439	$\text{Nb}^{3+} + 3\text{e} \rightleftharpoons \text{Nb}$	-1.099
-1.48	$\text{HIO} + \text{H}^+ + 2\text{e} \rightleftharpoons \text{I}^- + \text{H}_2\text{O}$	0.987	$\text{Nb}_2\text{O}_5 + 10\text{H}^+ + 10\text{e} \rightleftharpoons 2\text{Nb} + 5\text{H}_2\text{O}$	-0.644
-2.92	$\text{IO}^- + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{I}^- + 2\text{OH}^-$	0.485	$\text{Nd}^{3+} + 3\text{e} \rightleftharpoons \text{Nd}$	-2.431
0.521	$2\text{IO}_3^- + 12\text{H}^+ + 10\text{e} \rightleftharpoons \text{I}_2 + 6\text{H}_2\text{O}$	1.195	$\text{Ni}^{2+} + 2\text{e} \rightleftharpoons \text{Ni}$	-0.257
0.153	$\text{IO}_3^- + 6\text{H}^+ + 6\text{e} \rightleftharpoons \text{I}^- + 3\text{H}_2\text{O}$	1.085	$\text{Ni}(\text{OH})_2 + 2\text{e} \rightleftharpoons \text{Ni} + 2\text{OH}^-$	-0.72
0.3419	$\text{IO}_3^- + 2\text{H}_2\text{O} + 4\text{e} \rightleftharpoons \text{IO}^- + 4\text{OH}^-$	0.15	$\text{NiO}_2 + 4\text{H}^+ + 2\text{e} \rightleftharpoons \text{Ni}^{2+} + 2\text{H}_2\text{O}$	1.678
0.345	$\text{IO}_3^- + 3\text{H}_2\text{O} + 6\text{e} \rightleftharpoons \text{I}^- + 6\text{OH}^-$	0.26	$\text{NiO}_2 + 2\text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{Ni}(\text{OH})_2 + 2\text{OH}^-$	-0.490
1.103	$\text{In}^+ + \text{e} \rightleftharpoons \text{In}$	-0.14	$\text{Np}^{3+} + 3\text{e} \rightleftharpoons \text{Np}$	-1.856
-0.360	$\text{In}^{2+} + \text{e} \rightleftharpoons \text{In}^+$	-0.40	$\text{Np}^{3+} + \text{e} \rightleftharpoons \text{Np}^{2+}$	0.147
-0.222	$\text{In}^+ + \text{e} \rightleftharpoons \text{In}^{2+}$	-0.49	$\text{NpO}_2 + \text{H}_2\text{O} + \text{H}^+ + \text{e} \rightleftharpoons \text{Np}(\text{OH})_2$	-0.962
-0.080	$\text{In}^{2+} + 2\text{e} \rightleftharpoons \text{In}^0$	-0.443	$\text{O}_2 + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{H}_2\text{O}_2$	0.695
-0.0034	$\text{In}^{3+} + 3\text{e} \rightleftharpoons \text{In}$	-0.3382	$\text{O}_2 + 4\text{H}^+ + 4\text{e} \rightleftharpoons 2\text{H}_2\text{O}$	1.229
-0.044	$\text{Ir}^{3+} + 3\text{e} \rightleftharpoons \text{Ir}$	1.156	$\text{O}_2 + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{HO}_2^- + \text{OH}^-$	-0.076
-3.395	$[\text{IrCl}_4]^- + \text{e} \rightleftharpoons [\text{IrCl}_4]^{2-}$	0.8665	$\text{O}_2 + 2\text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{H}_2\text{O}_2 + 2\text{OH}^-$	-0.146
-2.407	$[\text{IrCl}_6]^{3-} + 3\text{e} \rightleftharpoons \text{Ir} + 6\text{Cl}^-$	0.77	$\text{O}_2 + 2\text{H}_2\text{O} + 4\text{e} \rightleftharpoons 4\text{OH}^-$	0.401
-0.36	$\text{Ir}_2\text{O}_3 + 3\text{H}_2\text{O} + 6\text{e} \rightleftharpoons 2\text{Ir} + 6\text{OH}^-$	0.098	$\text{O}_2 + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{O}_2 + \text{H}_2\text{O}$	2.076
3.053	$\text{K}^+ + \text{e} \rightleftharpoons \text{K}$	-2.931	$\text{O}_2 + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{O}_2 + 2\text{OH}^-$	1.24
2.866	$\text{La}^{3+} + 3\text{e} \rightleftharpoons \text{La}$	-2.522	$\text{O}(\text{g}) + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{H}_2\text{O}$	2.421
2.153	$\text{La}(\text{OH})_3 + 3\text{e} \rightleftharpoons \text{La} + 3\text{OH}^-$	-2.90	$\text{OH}^- + \text{e} \rightleftharpoons \text{OH}^{2-}$	0.878
-0.447	$\text{Li}^+ + \text{e} \rightleftharpoons \text{Li}$	-3.0401	$\text{HO}_2^- + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons 3\text{OH}^-$	0.85
-0.037	$\text{Mg}^{2+} + \text{e} \rightleftharpoons \text{Mg}$	-2.70	$\text{OsO}_4 + 8\text{H}^+ + 8\text{e} \rightleftharpoons \text{Os} + 4\text{H}_2\text{O}$	-0.111
0.771	$\text{Mg}^{2+} + 2\text{e} \rightleftharpoons \text{Mg}$	-2.372	$\text{P}(\text{red}) + 3\text{H}^+ + 3\text{e} \rightleftharpoons \text{PH}_3(\text{g})$	-0.063
0.358	$\text{Mg}(\text{OH})_2 + 2\text{e} \rightleftharpoons \text{Mg} + 2\text{OH}^-$	-2.690	$\text{P}(\text{white}) + 3\text{H}^+ + 3\text{e} \rightleftharpoons \text{PH}_3(\text{g})$	-0.87
2.20	$\text{Mn}^{2+} + 2\text{e} \rightleftharpoons \text{Mn}$	-1.185	$\text{P} + 3\text{H}_2\text{O} + 3\text{e} \rightleftharpoons \text{PH}_3(\text{g}) + 3\text{OH}^-$	-1.82
-0.56	$\text{Mn}^{3+} + 3\text{e} \rightleftharpoons \text{Mn}$	1.5415	$\text{H}_2\text{PO}_2^- + \text{e} \rightleftharpoons \text{P} + 2\text{OH}^-$	-0.508
1.14	$\text{MnO}_2 + 4\text{H}^+ + 2\text{e} \rightleftharpoons \text{Mn}^{2+} + 2\text{H}_2\text{O}$	1.224	$\text{H}_2\text{PO}_2 + \text{H}^+ + 3\text{e} \rightleftharpoons \text{P} + 2\text{H}_2\text{O}$	-0.499
1.06	$\text{MnO}_2 + \text{e} \rightleftharpoons \text{MnO}_2^-$	0.558	$\text{H}_2\text{PO}_3 + 3\text{H}^+ + 3\text{e} \rightleftharpoons \text{P} + 3\text{H}_2\text{O}$	-0.454
0.40	$\text{MnO}_2 + 4\text{H}^+ + 3\text{e} \rightleftharpoons \text{MnO}_2 + 2\text{H}_2\text{O}$	1.679	$\text{HPO}_3^{2-} + 2\text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{H}_2\text{PO}_2^- + 3\text{OH}^-$	-1.65
-0.5	$\text{MnO}_2 + 8\text{H}^+ + 5\text{e} \rightleftharpoons \text{Mn}^{2+} + 4\text{H}_2\text{O}$	1.507	$\text{HPO}_3^{2-} + 2\text{H}_2\text{O} + 3\text{e} \rightleftharpoons \text{P} + 5\text{OH}^-$	-1.71
-1.2	$\text{MnO}_2 + 2\text{H}_2\text{O} + 3\text{e} \rightleftharpoons \text{MnO}_2 + 4\text{OH}^-$	0.595	$\text{H}_2\text{PO}_4 + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{H}_3\text{PO}_4 + \text{H}_2\text{O}$	-0.276
0.2	$\text{MnO}_2^- + 2\text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{MnO}_2 + 4\text{OH}^-$	0.60	$\text{PO}_4^{3-} + 2\text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{HPO}_4^{2-} + 3\text{OH}^-$	-1.05
0.1	$\text{Mn}(\text{OH})_2 + 2\text{e} \rightleftharpoons \text{Mn} + 2\text{OH}^-$	-1.56	$\text{Pb}^{2+} + 2\text{e} \rightleftharpoons \text{Pb}$	-0.1262
0.1	$\text{Mn}(\text{OH})_2 + \text{e} \rightleftharpoons \text{Mn}(\text{OH})_2 + \text{OH}^-$	0.15	$\text{Pb}^{2+} + 2\text{e} \rightleftharpoons \text{Pb}(\text{Hg})$	-0.1205
-0.1	$\text{Mo}^{3+} + 3\text{e} \rightleftharpoons \text{Mo}$	-0.200	$\text{PbBr}_2 + 2\text{e} \rightleftharpoons \text{Pb} + 2\text{Br}^-$	-0.284
-0.1	$\text{N}_2 + 2\text{H}_2\text{O} + 6\text{H}^+ + 6\text{e} \rightleftharpoons 2\text{NH}_4\text{OH}$	0.092	$\text{PbCl}_2 + 2\text{e} \rightleftharpoons \text{Pb} + 2\text{Cl}^-$	-0.2675
-2	$\text{N}_2 + 2\text{H}^+ + 2\text{e} \rightleftharpoons 2\text{NH}_3$	-3.09	$\text{PbF}_2 + 2\text{e} \rightleftharpoons \text{Pb} + 2\text{F}^-$	-0.3444
-2	$\text{N}_2 + 3\text{H}^+ + 2\text{e} \rightleftharpoons 2\text{NH}_4^+$	1.275	$\text{PbHPO}_4 + 2\text{e} \rightleftharpoons \text{Pb} + \text{HPO}_4^{2-}$	-0.465
-2	$\text{N}_2\text{O} + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{N}_2 + \text{H}_2\text{O}$	1.766	$\text{PbI}_2 + 2\text{e} \rightleftharpoons \text{Pb} + 2\text{I}^-$	-0.365
-2	$\text{N}_2\text{O}_2 + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{N}_2 + 2\text{H}_2\text{O}$	2.65	$\text{PbO} + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{Pb} + 2\text{OH}^-$	-0.580
-2	$\text{N}_2\text{O} + 2\text{e} \rightleftharpoons 2\text{NO}_2^-$	0.867	$\text{PbO}_2 + 4\text{H}^+ + 2\text{e} \rightleftharpoons \text{Pb}^{2+} + 2\text{H}_2\text{O}$	1.455
-2	$\text{N}_2\text{O}_4 + 2\text{H}^+ + 2\text{e} \rightleftharpoons 2\text{HNO}_2$	1.065	$\text{HPbO}_2^- + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{Pb} + 3\text{OH}^-$	-0.537
-2	$\text{N}_2\text{O}_4 + 4\text{H}^+ + 4\text{e} \rightleftharpoons 2\text{NO} + 2\text{H}_2\text{O}$	1.035	$\text{PbO}_2 + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{PbO} + 2\text{OH}^-$	0.247
-2	$\text{NH}_4\text{OH} + \text{H}^+ + 2\text{e} \rightleftharpoons \text{N}_2\text{H}_5^+ + 2\text{H}_2\text{O}$	1.42	$\text{PbO}_2 + \text{SO}_4^{2-} + 4\text{H}^+ + 2\text{e} \rightleftharpoons \text{PbSO}_4 + 2\text{H}_2\text{O}$	1.6913
-2	$\text{NO} + 2\text{e} \rightleftharpoons \text{N}_2\text{O}_2^{2-}$	0.10	$\text{PbSO}_4 + 2\text{e} \rightleftharpoons \text{Pb} + \text{SO}_4^{2-}$	-0.3588
-2	$\text{NO} + 2\text{H}^+ + 2\text{e} \rightleftharpoons \text{N}_2\text{O} + \text{H}_2\text{O}$	1.591		
-2	$\text{NO} + \text{H}_2\text{O} + 2\text{e} \rightleftharpoons \text{N}_2\text{O} + 2\text{OH}^-$	0.76		

Table 1 (continued)
ALPHABETICAL LISTING

Reaction	E°, V	Reaction	E°, V
$\text{PbSO}_4 + 2e \rightleftharpoons \text{Pb(Hg)} + \text{SO}_4^{2-}$	-0.3505	$\text{Se} + 2\text{H}^+ + 2e \rightleftharpoons \text{H}_2\text{Se(aq)}$	-0.00
$\text{Pd}^{2+} + 2e \rightleftharpoons \text{Pd}$	0.951	$\text{H}_2\text{SeO}_3 + 4\text{H}^+ + 4e \rightleftharpoons \text{Se} + 3\text{H}_2\text{O}$	-0.07
$[\text{PdCl}_4]^{2-} + 2e \rightleftharpoons \text{Pd} + 4\text{Cl}^-$	0.591	$\text{SeO}_3^{2-} + 3\text{H}_2\text{O} + 4e \rightleftharpoons \text{Se} + 6\text{OH}^-$	-0.03
$[\text{PdCl}_4]^{2-} + 2e \rightleftharpoons [\text{PdCl}_2]^{2-} + 2\text{Cl}^-$	1.288	$\text{SeO}_4^{2-} + 4\text{H}^+ + 2e \rightleftharpoons \text{H}_2\text{SeO}_3 + \text{H}_2\text{O}$	-0.11
$\text{Pd(OH)}_2 + 2e \rightleftharpoons \text{Pd} + 2\text{OH}^-$	0.07	$\text{SeO}_4^{2-} + \text{H}_2\text{O} + 2e \rightleftharpoons \text{SeO}_3^{2-} + 2\text{OH}^-$	0.00
$\text{Pt}^{2+} + 2e \rightleftharpoons \text{Pt}$	1.118	$\text{SiF}_6^{2-} + 4e \rightleftharpoons \text{Si} + 6\text{F}^-$	-1.22
$[\text{PtCl}_4]^{2-} + 2e \rightleftharpoons \text{Pt} + 4\text{Cl}^-$	0.755	$\text{SiO}_2 \text{ (quartz)} + 4\text{H}^+ + 4e \rightleftharpoons \text{Si} + 2\text{H}_2\text{O}$	0.85
$[\text{PtCl}_4]^{2-} + 2e \rightleftharpoons [\text{PtCl}_2]^{2-} + 2\text{Cl}^-$	0.68	$\text{SiO}_3^{2-} + 3\text{H}_2\text{O} + 4e \rightleftharpoons \text{Si} + 6\text{OH}^-$	-1.67
$\text{Pt(OH)}_2 + 2e \rightleftharpoons \text{Pt} + 2\text{OH}^-$	0.14	$\text{Sn}^{2+} + 2e \rightleftharpoons \text{Sn}$	-0.13
$\text{Pu}^{3+} + 3e \rightleftharpoons \text{Pu}$	-2.031	$\text{Sn}^{4+} + 2e \rightleftharpoons \text{Sn}^{2+}$	0.15
$\text{Pu}^{3+} + e \rightleftharpoons \text{Pu}^{2+}$	1.006	$\text{HSnO}_2^- + \text{H}_2\text{O} + 2e \rightleftharpoons \text{Sn} + 3\text{OH}^-$	-0.90
$\text{Pu}^{3+} + e \rightleftharpoons \text{Pu}^{4+}$	1.099	$\text{Sn(OH)}_6^{2-} + 2e \rightleftharpoons \text{HSnO}_2^- + 3\text{OH}^- + \text{H}_2\text{O}$	-0.92
$\text{PuO}_2(\text{OH})_2 + 2\text{H}^+ + 2e \rightleftharpoons \text{Pu(OH)}_4$	1.325	$\text{Sr}^+ + e \rightleftharpoons \text{Sr}$	-4.10
$\text{PuO}_2(\text{OH})_2 + \text{H}^+ + e \rightleftharpoons \text{PuO}_2\text{OH} + \text{H}_2\text{O}$	1.062	$\text{Sr}^{2+} + 2e \rightleftharpoons \text{Sr}$	-2.89
$\text{Rb}^+ + e \rightleftharpoons \text{Rb}$	-2.98	$\text{Sr}^{2+} + 2e \rightleftharpoons \text{Sr(Hg)}$	-1.79
$\text{Re}^{3+} + 3e \rightleftharpoons \text{Re}$	0.300	$\text{Sr(OH)}_2 + 2e \rightleftharpoons \text{Sr} + 2\text{OH}^-$	-2.88
$\text{ReO}_4^- + 4\text{H}^+ + 3e \rightleftharpoons \text{ReO}_2 + 2\text{H}_2\text{O}$	0.510	$\text{Ta}_2\text{O}_5 + 10\text{H}^+ + 10e \rightleftharpoons 2\text{Ta} + 5\text{H}_2\text{O}$	-0.750
$\text{ReO}_4^- + 4\text{H}^+ + 4e \rightleftharpoons \text{Re} + 2\text{H}_2\text{O}$	0.2513	$\text{Tc}^{2+} + 2e \rightleftharpoons \text{Tc}$	0.400
$\text{ReO}_4^- + 2\text{H}^+ + e \rightleftharpoons \text{ReO}_3 + \text{H}_2\text{O}$	0.768	$\text{TeO}_4^{2-} + 4\text{H}^+ + 3e \rightleftharpoons \text{TeO}_2 + 2\text{H}_2\text{O}$	0.782
$\text{ReO}_4^- + 4\text{H}_2\text{O} + 7e \rightleftharpoons \text{Re} + 8\text{OH}^-$	-0.584	$\text{Te} + 2e \rightleftharpoons \text{Te}^{2-}$	-1.143
$\text{ReO}_4^- + 8\text{H}^+ + 7e \rightleftharpoons \text{Re} + 4\text{H}_2\text{O}$	0.368	$\text{Te} + 2\text{H}^+ + 2e \rightleftharpoons \text{H}_2\text{Te}$	-0.793
$\text{Rh}^+ + e \rightleftharpoons \text{Rh}$	0.600	$\text{Te}^{4+} + 4e \rightleftharpoons \text{Te}$	0.568
$\text{Rh}^{2+} + 2e \rightleftharpoons \text{Rh}$	0.600	$\text{TeO}_2 + 4\text{H}^+ + 4e \rightleftharpoons \text{Te} + 2\text{H}_2\text{O}$	0.593
$\text{Rh}^{3+} + 3e \rightleftharpoons \text{Rh}$	0.758	$\text{TeO}_3^{2-} + 3\text{H}_2\text{O} + 4e \rightleftharpoons \text{Te} + 6\text{OH}^-$	-0.57
$[\text{RhCl}_4]^{2-} + 3e \rightleftharpoons \text{Rh} + 6\text{Cl}^-$	0.431	$\text{TeO}_4^{2-} + 8\text{H}^+ + 7e \rightleftharpoons \text{Te} + 4\text{H}_2\text{O}$	0.472
$\text{Ru}^{2+} + 2e \rightleftharpoons \text{Ru}$	0.455	$\text{H}_4\text{TeO}_6 + 2\text{H}^+ + 2e \rightleftharpoons \text{TeO}_2 + 4\text{H}_2\text{O}$	1.02
$\text{Ru}^{3+} + e \rightleftharpoons \text{Ru}^{2+}$	0.2487	$\text{Th}^{4+} + 4e \rightleftharpoons \text{Th}$	-1.899
$\text{RuO}_2 + 4\text{H}^+ + 2e \rightleftharpoons \text{Ru}^{2+} + 2\text{H}_2\text{O}$	1.120	$\text{ThO}_2 + 4\text{H}^+ + 4e \rightleftharpoons \text{Th} + 2\text{H}_2\text{O}$	-1.789
$\text{RuO}_4^- + e \rightleftharpoons \text{RuO}_4^{2-}$	0.59	$\text{Th(OH)}_4 + 4e \rightleftharpoons \text{Th} + 4\text{OH}^-$	-2.48
$\text{RuO}_4 + e \rightleftharpoons \text{RuO}_4^-$	1.00	$\text{Ti}^{2+} + 2e \rightleftharpoons \text{Ti}$	-1.630
$\text{S} + 2e \rightleftharpoons \text{S}^{2-}$	-0.47627	$\text{Ti}^{3+} + e \rightleftharpoons \text{Ti}^{2+}$	-0.368
$\text{S} + 2\text{H}^+ + 2e \rightleftharpoons \text{H}_2\text{S(aq)}$	0.142	$\text{TiO}_2 + 4\text{H}^+ + 2e \rightleftharpoons \text{Ti}^{2+} + 2\text{H}_2\text{O}$	-0.502
$\text{S} + \text{H}_2\text{O} + 2e \rightleftharpoons \text{HS}^- + \text{OH}^-$	-0.478	$\text{Ti(OH)}^{3+} + \text{H}^+ + e \rightleftharpoons \text{Ti}^{3+} + \text{H}_2\text{O}$	-0.055
$2\text{S} + 2e \rightleftharpoons \text{S}_2^{2-}$	-0.42836	$\text{Ti}^+ + e \rightleftharpoons \text{Ti}$	-0.336
$\text{S}_2\text{O}_8^{2-} + 4\text{H}^+ + 2e \rightleftharpoons 2\text{H}_2\text{SO}_4$	0.564	$\text{Ti}^+ + e \rightleftharpoons \text{Ti(Hg)}$	-0.3338
$\text{S}_2\text{O}_8^{2-} + 2e \rightleftharpoons 2\text{SO}_4^{2-}$	2.010	$\text{Ti}^{3+} + 2e \rightleftharpoons \text{Ti}^+$	1.252
$\text{S}_2\text{O}_8^{2-} + 2\text{H}^+ + 2e \rightleftharpoons 2\text{HSO}_4^-$	2.123	$\text{TiBr} + e \rightleftharpoons \text{Ti} + \text{Br}^-$	-0.658
$\text{S}_2\text{O}_8^{2-} + 2e \rightleftharpoons 2\text{S}_2\text{O}_7^{2-}$	0.08	$\text{TiCl} + e \rightleftharpoons \text{Ti} + \text{Cl}^-$	-0.5568
$2\text{H}_2\text{SO}_3 + \text{H}^+ + 2e \rightleftharpoons \text{HS}_2\text{O}_4^- + 2\text{H}_2\text{O}$	-0.056	$\text{TiI} + e \rightleftharpoons \text{Ti} + \text{I}^-$	-0.752
$\text{H}_2\text{SO}_3 + 4\text{H}^+ + 4e \rightleftharpoons \text{S} + 3\text{H}_2\text{O}$	0.449	$\text{Ti}_2\text{O}_3 + 3\text{H}_2\text{O} + 4e \rightleftharpoons 2\text{Ti}^+ + 6\text{OH}^-$	0.02
$2\text{SO}_3^{2-} + 2\text{H}_2\text{O} + 2e \rightleftharpoons \text{S}_2\text{O}_4^{2-} + 4\text{OH}^-$	-1.12	$\text{TiOH} + e \rightleftharpoons \text{Ti} + \text{OH}^-$	-0.34
$2\text{SO}_3^{2-} + 3\text{H}_2\text{O} + 4e \rightleftharpoons \text{S}_2\text{O}_4^{2-} + 6\text{OH}^-$	-0.571	$\text{Ti(OH)}_3 + 2e \rightleftharpoons \text{TiOH} + 2\text{OH}^-$	-0.05
$\text{SO}_4^{2-} + 4\text{H}^+ + 2e \rightleftharpoons \text{H}_2\text{SO}_3 + \text{H}_2\text{O}$	0.172	$\text{Ti}_2\text{SO}_4 + 2e \rightleftharpoons \text{Ti}^+ + \text{SO}_4^{2-}$	-0.4360
$2\text{SO}_4^{2-} + 4\text{H}^+ + 2e \rightleftharpoons \text{S}_2\text{O}_8^{2-} + \text{H}_2\text{O}$	-0.22	$\text{U}^{3+} + 3e \rightleftharpoons \text{U}$	-1.798
$\text{SO}_4^{2-} + \text{H}_2\text{O} + 2e \rightleftharpoons \text{SO}_3^{2-} + 2\text{OH}^-$	-0.93	$\text{U}^{4+} + e \rightleftharpoons \text{U}^{3+}$	-0.607
$\text{Sb} + 3\text{H}^+ + 3e \rightleftharpoons \text{SbH}_3$	-0.510	$\text{UO}_2^{2+} + 4\text{H}^+ + e \rightleftharpoons \text{U}^{4+} + 2\text{H}_2\text{O}$	0.612
$\text{Sb}_2\text{O}_3 + 6\text{H}^+ + 6e \rightleftharpoons 2\text{Sb} + 3\text{H}_2\text{O}$	0.152	$\text{UO}_2^{2+} + 4\text{H}^+ + 6e \rightleftharpoons \text{U} + 2\text{H}_2\text{O}$	0.062
$\text{Sb}_2\text{O}_3 \text{ (senarmonite)} + 4\text{H}^+ + 4e \rightleftharpoons \text{Sb}_2\text{O}_3 + 2\text{H}_2\text{O}$	0.671	$\text{VO}_2^{2+} + 2\text{H}^+ + e \rightleftharpoons \text{VO}^{2+} + \text{H}_2\text{O}$	0.327
$\text{Sb}_2\text{O}_3 \text{ (valentinite)} + 4\text{H}^+ + 4e \rightleftharpoons \text{Sb}_2\text{O}_3 + 2\text{H}_2\text{O}$	0.649	$\text{VO}_2^{2+} + 2\text{H}^+ + e \rightleftharpoons \text{VO}^{2+} + \text{H}_2\text{O}$	-1.444
$\text{Sb}_2\text{O}_3 + 6\text{H}^+ + 4e \rightleftharpoons 2\text{SbO}^+ + 3\text{H}_2\text{O}$	0.581	$\text{V(OH)}_2 + 2\text{H}^+ + e \rightleftharpoons \text{VO}^{2+} + 3\text{H}_2\text{O}$	-1.175
$\text{SbO}^+ + 2\text{H}^+ + 3e \rightleftharpoons \text{Sb} + 2\text{H}_2\text{O}$	0.212	$\text{V(OH)}_2 + 4\text{H}^+ + 5e \rightleftharpoons \text{V} + 4\text{H}_2\text{O}$	-0.255
$\text{SbO}_2^- + 2\text{H}_2\text{O} + 3e \rightleftharpoons \text{Sb} + 4\text{OH}^-$	-0.66	$\text{W}_2\text{O}_5 + 2\text{H}^+ + 2e \rightleftharpoons 2\text{WO}_2 + \text{H}_2\text{O}$	0.337
$\text{SbO}_2^- + \text{H}_2\text{O} + 2e \rightleftharpoons \text{SbO}_2^- + 2\text{OH}^-$	-0.59		0.991
$\text{Sc}^{3+} + 3e \rightleftharpoons \text{Sc}$	-2.077		1.00
$\text{Se} + 2e \rightleftharpoons \text{Se}^{2-}$	-0.924		-0.254
			-0.031

WO₂ + 4 H⁺
WO₂ + 6 I⁻
2 WO₃ + 3 e⁻
Zn²⁺ + 2 e⁻
Zn²⁺ + 2 e⁻

REDU

2 H⁺ + 2 e⁻
Cu₂²⁺ + e⁻
Ge⁴⁺ + 4 e⁻
NO₃⁻ + H⁺
Ti₂O₃ + 6 e⁻
SeO₄²⁻ + 4 e⁻
UO₂²⁺ + 2 e⁻
Pd(OH)₂ + 2 e⁻
S₂O₈²⁻ + 2 e⁻
AgSCN + e⁻
N₂ + 2 e⁻
HgO + 2 e⁻
Ir₂O₃ + 6 e⁻
2 NO + 2 e⁻
[Co(NH₃)₆]³⁺
Hg₂O + 2 e⁻
Ge⁴⁺ + 4 e⁻
Hg₂Br₂ + 2 e⁻
Pt(OH)₂ + 2 e⁻
S + 2I⁻
Np⁴⁺ + 4 e⁻
Ag₂Fe + 2 e⁻
IO₃⁻ + 5 e⁻
Mn(OH)₂ + 2 e⁻
2 NO₂ + 2 e⁻
Sn⁴⁺ + 4 e⁻
Sb₂O₃ + 6 e⁻
Cu²⁺ + 2 e⁻
BiOCl + 3 e⁻
BiCl₃ + 3 e⁻
CoO + 2 e⁻
SO₄²⁻ + 2 e⁻
SbO⁺ + 2 e⁻
AgCl + e⁻
As₂O₃ + 6 e⁻
Calo + 2 e⁻
Ge⁴⁺ + 4 e⁻
Calo + 2 e⁻
PbO + 2 e⁻
HA₂ + 2 e⁻
Ru³⁺ + 3 e⁻
ReCl₃ + 3 e⁻
IO₃⁻ + 5 e⁻
Hg + 2 e⁻
Cal + 2 e⁻
C₂